

10-06-04

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application of:

NEEF, Charles J. et al.

Serial No.: 10/601,897

Filed: June 23, 2003

WET-DEVELOPABLE ANTIREFLECTIVE
COMPOSITIONS

Docket No.: 32779

Confirmation No.: 7560

Group Art Unit No.: 1752

Examiner: Rosemary E. Ashton

TRANSMITTAL

Transmitted herewith are: Transmittal (1 page); Statement regarding Disclosure of Related Pending Applications (1 page); a copy of an Office Action mailed September 30, 2003 (7 pages); and return postcard.

EL 973753955 US

Express Mail No.

Respectfully submitted,

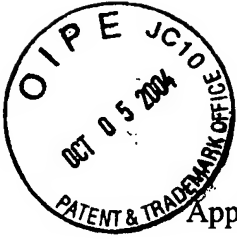
HOVEY WILLIAMS LLP

Dated: October 5, 2004

by

Tracy Bornman, Reg. No. 42,347
HOVEY WILLIAMS LLP
2405 Grand Boulevard, Suite 400
Kansas City, Missouri 64108
816/474-9050

ATTORNEYS FOR APPLICANT



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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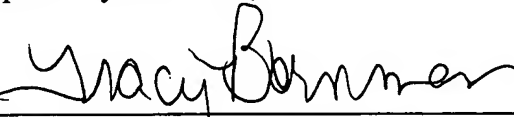
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

STATEMENT

In accordance with Applicants' duty of candor toward the Office, Applicants hereby advise the Examiner of the existence of U.S. Patent No. 6,740,469, issued May 25, 2004, entitled DEVELOPER-SOLUBLE METAL ALKOXIDE COATINGS FOR MICROELECTRONIC APPLICATIONS. An office action was mailed in the application that issued into the '469 patent on September 30, 2003, in which several claims were rejected as being anticipated by U.S. Patent No. 4,910,122. A copy of that action is enclosed.

Respectfully submitted,

By 

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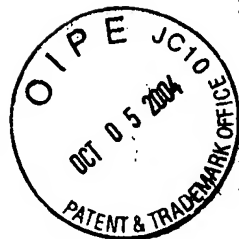
ATTORNEYS FOR APPLICANT(S)



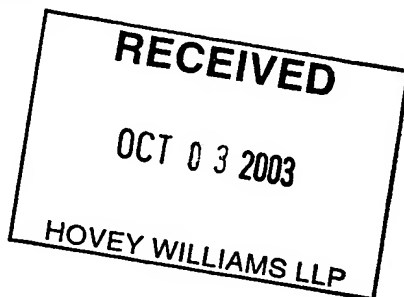
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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/180,625	06/25/2002	Vandana Krishnamurthy	32402	9297



7590 09/30/2003
HOVEY WILLIAMS LLP
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Kansas City, MO 64108



EXAMINER

LEE, SIN J

ART UNIT PAPER NUMBER

1752

DATE MAILED: 09/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

ALECTO

OCT 03 2003

ENTERED BY sgm



Office Action Summary

Application No.	Applicant(s)	
10/180,625	KRISHNAMURTHY ET AL.	
Examiner	Art Unit	
Sin J Lee	1752	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-29 and 43-56 is/are allowed.
- 6) ☒ Claim(s) 30-33, 36-39 and 42 is/are rejected.
- 7) ☒ Claim(s) 34, 35, 40 and 41 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 June 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4</u> . | 6) <input type="checkbox"/> Other: |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 30-33, 36-39, and 42 are rejected under 35 U.S.C. 102(b) as being anticipated by Arnold et al (4,910,122) (with Wilson et al (4,369,090) which is cited here to support the Examiner's statement that the MF 312 developer used in Arnold's Example 3 is a 5% by wt tetramethyl ammonium hydroxide (TMAH) solution from the Shipley Company).

In Arnold's Example 3, a *silicon wafer* is coated with an anti reflective coating. The coated wafer is baked to cure the coating, and the coated wafer is then *coated with a photoresist*. After the photoresist is cured by baking, the prepared wafer is imaged. The imaged photoresist and the anti-reflective layer are then selectively removed by using MF 312 developer for 10 seconds to produce a *sharp*, clear image. See also Fig.1 and Fig.2. It is shown from the Figures that the present angle "a" (as explained in present Fig.1b) is about 90° and present % erosion (as explained in present Fig.1b and present specification, pg.8) is about 0%. Therefore, the prior art teaches present inventions of claims 30, 31, 36, 37, and 42.

Art Unit: 1752

With respect to present claims 32, 33, 38, and 39, the MF 312 developer used in Arnold's Example 3 is a 5% by wt tetramethyl ammonium hydroxide (TMAH) solution from the Shipley Company as evidenced by Wilson et al, col.2, lines 65-67. Therefore, Arnold teaches present inventions of claims 32, 33, 38, and 39.

Allowable Subject Matter

3. Claims 34, 35, 40, and 41 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Arnold et al does not teach or suggest the presently claimed polymers of claims 34, 35, 40, and 41.

4. Claims 1-21 and 43-56 are allowed. Kenichi et al (JP 10-149531 and its machine-assisted English translation) teaches a dispersant for nonmagnetic powder, and the dispersant consists of polytitanium (or polyzirconium) acetyl acetate which chemical structure is shown in the drawing 5 on pg.15 of the Japanese document. Although the chemical structure shown in the drawing 5 teaches the present recurring unit claimed in dependent claim 2, it does not teach or suggest the presently claimed light-attenuating moiety "X" in present claims 1 and 43. Also, according to the present specification, the polymers claimed in present claims 1 and 43 are the same polymers as those claimed in present claims 12 and 50. Therefore, present claims 1-21 and 43-56 are allowed over Kenichi et al.

Claims 22-29 are allowed. Although Arnold et al teaches wet developable, cured anti reflective coating layer, Arnold's anti reflective coating layer does not comprise

Art Unit: 1752

alternating metal atom and oxygen atom bonds as presently claimed in claim 22.

Takano et al (6,309,789 B1) also teaches a wet developable anti-reflective coating composition, but their anti-reflective coating composition does not comprise alternating metal atom and oxygen atom bonds as presently claimed in claim 22.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is (703) 305-0504. The examiner can normally be reached on Monday-Friday from 8:30 am EST to 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Janet Baxter, can be reached on (703) 308-2303. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9311 for after final responses or (703) 872-9310 for before final responses.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-0661.

S. J. Lee

S. Lee
9/16/03


JANET BAXTER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO.
32402

SERIAL NO.
10/180,625

INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

APPLICANT: KRISHNAMURTHY, VANDANA
et al.

FILING DATE:
June 25, 2002

GROUP: 1752

U.S. PATENT DOCUMENTS

EXAM. INITIAL	DOCUMENT NUMBER							DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
S.J.L.	4	6	8	3	0	2	4	07/28/1987	Miller et al.	156	643	
	4	2	4	4	7	9	9	01/13/1981	Fraser et al.	204	192 E	
	5	6	3	2	9	1	0	05/27/1997	Nagayama et al.	216	47	
	5	3	7	6	9	6	9	12/06/1994	Vidusek	430	272.1	
	5	1	2	6	2	3	1	06/30/1992	Levy	430	313	
	5	9	2	5	5	7	8	06/20/1999	Bae	438	736	
	6	0	1	5	6	5	0	01/18/2000	Bae	430	314	
	6	1	3	6	5	1	1	10/24/2000	Reinberg et al.	430	313	
	6	1	5	6	8	6	5	12/05/2000	Hamm et al.	438	706	
	4	7	3	2	8	4	1	03/22/1988	Radigan	430	311	
	4	7	3	8	9	1	6	04/19/1988	Namatsu et al.	430	272.1	
	4	8	9	1	3	0	3	01/02/1990	Garza et al.	430	312	
↓	5	4	0	3	4	3	8	04/04/1995	Motoyama	156	660	

FOREIGN PATENT DOCUMENTS

[illegible]

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

in conformance and not consi

9-15-2003

Notice of References CitedApplication/Control No.
10/180,625Applicant(s)/Patent Under
Reexamination
KRISHNAMURTHY ET AL.Examiner
Sin J LeeArt Unit
1752

Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
✓	A	US-4,910,122	03-1990	Arnold et al.	430/313
✓	B	US-4,369,090	01-1983	Wilson et al.	156-644
✓	C	US-6,309,789 B1	10-2001	Takano et al.	430/270.1
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
*	K	US-			
	L	US-			
*	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
✓	N	JP-10149531	06-1998	Japan	Kenichi et al.	N/A
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Machine Assisted English translation for JP-10149531.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.